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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* STEVEN T. FINK,
ERIC J. STRANG,
ARTHUR H. LAFLAMME, JR.,
JAY WALLACE and SANDRA HYLAND

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Appeal 2008-0447
Application 10/705,224
Technology Center 1700

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Decided: January 18, 2008

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Before BRADLEY R. GARRIS, LINDA M. GAUDETTE, and KAREN M. HASTINGS, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-17. We have jurisdiction under 35 U.S.C. § 6.

We AFFIRM-IN-PART.

Appellants claim a baffle plate assembly for surrounding a substrate holder 30 in a plasma processing system 1 comprising a centering ring 100 configured to be coupled to the substrate holder and a baffle plate 64 configured to be centered within the plasma processing system by coupling the baffle plate to a portion of the centering ring extending radially outside the periphery of the substrate holder (claim 1; Figs. 1, 11). Appellants also claim a disposable baffle plate comprising a ring having a first edge configured to be coupled to a substrate holder via a centering ring to thereby facilitate centering the baffle ring in a plasma processing system (claim 16; Fig. 2A). Finally, Appellants claim a method of replacing a baffle plate which comprises removing the baffle plate from a centering ring in a plasma processing system and installing a second baffle plate in the processing system by coupling the second baffle plate to the centering ring (claim 17).

Representative claims 1, 16, and 17[1] read as follows:

1. A baffle plate assembly for surrounding a substrate holder in a plasma processing system comprising:

a centering ring configured to be coupled to said substrate holder, wherein at least a portion of said centering ring extends radially outside a periphery of said substrate holder; and

a baffle plate comprising one or more passageways, wherein said baffle plate is configured to be centered within said plasma processing system by coupling said baffle plate to said portion of said centering ring extending radially outside said periphery of said substrate holder.

[1] The claim 17 phrase "said first baffle plate" lacks strict antecedent basis and therefore should read ---a first baffle plate---.

16. A disposable baffle plate for surrounding a substrate holder in a plasma processing system comprising:

a ring comprising a first edge configured to be coupled to said substrate holder via a centering ring with at least a portion of said centering ring extending radially outside a periphery of said substrate holder, a second edge configured to be proximate a wall of said plasma processing system, and one or more openings to permit the passage of gas therethrough,

wherein said coupling of said first edge to said centering ring facilitates centering said ring in said plasma processing system such that a space between said second edge and said wall is substantially constant.

17. A method of replacing a baffle plate disposed adjacent a centering ring with at least a portion of said centering ring extending radially outside a periphery of a substrate holder, said baffle plate surrounding said substrate holder in a plasma processing system, the method comprising:

removing said first baffle plate from said centering ring in said plasma processing system; and

installing a second baffle plate in said plasma processing system by coupling said second baffle to said centering ring, wherein said coupling facilitates auto-centering of said second baffle plate in said plasma processing system.

The references set forth below are relied upon by the Examiner as evidence of anticipation and obviousness:

| | | |
|---|---|---|
| Tomoyasu | 6,264,788 B1 | Jul. 24, 2001 |
| Nagayama[2] (as translated) | WO 02067311 A1 | Sep. 6, 2002 |
| Li | 6,506,685 B2 | Jan. 14, 2003 |
| Kanno | 6,646,233 B2 | Nov. 11, 2003 |

[2] Both Appellants and the Examiner refer to this reference as "Hiroyuki" which is the first name of the last inventor listed in this reference.

Ludviksson US 2005/0041238 A1 Feb. 24, 2005

Under 35 U.S.C. § 102(b) or (e):

> claims 1, 3-5, 9-14, and 16 are rejected as being anticipated by Nagayama;
>
> claims 1, 6-8, and 14-16 are rejected as being anticipated by Tomoyasu;
>
> claims 1, 8, and 14-16 are rejected as being anticipated by Li;
>
> and claims 1, 7-13, 16, and 17 are rejected as being anticipated by Ludviksson.

Claim 2 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakayama or Tomoyasu or Li or Ludviksson in view of Kanno.[3]

As an initial matter, we observe that Appellants have not separately argued any of the dependent claims, all of which depend from claim 1. Accordingly, these dependent claims will stand or fall with claim 1.

[3] On page 4 of the Brief, Appellants express the incorrect belief that the § 103 rejection is based on less than all of the above-listed primary references which is contrary to the rejection as set forth on page 5 of the Final Office Action. On pages 2-3 of the Answer, the Examiner corrected Appellants' misimpression on this matter. In the Reply Brief, Appellants do not acknowledge the Examiner's correction of this misimpression and do not address the § 103 rejection at all.

The § 102 rejection based on Nagayama

Regarding independent claims 1 and 16, the Examiner finds that Nagayama discloses a baffle plate 12 and an insulation ring 13 (Nagayama, Fig. 1) which the Examiner considers readable on Appellants' claimed centering ring (Ans. 4).

We agree with Appellants' argument (App. Br. 4) that Nagayama's insulation ring 13 is not readable on the centering ring required by claim 1. This claim recites that the baffle plate "is configured to be centered within said plasma processing system by coupling said baffle plate to said portion of said centering ring extending radially outside said periphery of said substrate holder." We find that the plain meaning of this recitation requires the baffle plate and centering ring must be capable of interacting when coupled together such that the baffle plate is centered within the plasma processing system. As correctly pointed out by Appellants' (Reply Br. 3), Nagayama's insulation ring 13 is disposed on top of (i.e., assembled after) baffle plate 12 (Nagayama Fig. 1). It follows that insulation ring 13 is not capable of interacting with baffle plate 12 so as to center the baffle plate as required by claim 1. For this reason, the Examiner erred in finding that the insulation ring 13 of Nagayama is readable on the centering ring of claim 1.

We are constrained by these circumstances to reverse the Examiner's § 102 rejection based on Nagayama of claim 1 and of claims 3-5 and 9-14 which depend therefrom.

We reach a different determination with respect to independent claim 16. This claim, unlike claim 1, does not require a centering ring. Instead,

claim 16 requires only a baffle plate comprising a ring which possesses the capability of being centered during a coupling step. We find that Nagayama's baffle plate 12 is inherently capable of being centered when fixed (i.e. coupled) to the side surface of electrode protecting component 8 (Fig. 1, para. 0018). In this regard, we remind Appellants that prior art structure which is not explicitly disclosed as possessing the functional capability recited in a claim will still anticipate the claim if it inherently possesses the capability of performing the function in question. *See In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997).

For these reasons, we affirm the Examiner's § 102 rejection based on Nagayama of claim 16.

The § 102 rejection based on Tomoyasu

Tomoyasu discloses a ring 325 having a top portion 327 with a baffle plate 326 which is made integral to the ring (Fig. 8; col. 11, ll. 5-19). The Examiner finds that ring 325, 327 reads on the centering ring of claim 1 and that baffle plate 326 is configured to be centered by coupling to ring 325, 327 as required by claim 1 (Ans. 4-5) because "an integrated member anticipates coupling" (*id.* at 5).

As discussed above, claim 1 requires a baffle plate and centering ring which possess a centering capability when coupled together. Like Appellants (App. Br. 5-6; Reply Br. 3-4), we do not understand why the Examiner believes Tomoyasu's ring 325, 327 and baffle plate 326 are considered to possess this capability, particularly since the integral nature of

this ring and plate would seem to prevent these elements from interacting so as to achieve centering of baffle plate 326 by coupling it to ring 325, 327.

In this regard, we also agree with Appellants that the Examiner has unreasonably interpreted the coupling requirement of claim 1 as encompassing the integrated structure of Tomoyasu's ring 325, 327 and baffle plate 326. In all embodiments of Appellants' invention, the centering ring and baffle plate are disclosed as discrete, separate structures which are removably coupled by mating surfaces, threaded fasteners or interacting elements such as pin and pin hole whereby the baffle plate can be automatically centered during installation and replaced via a removable coupling to the centering ring (see the Specification and Drawing in their entireties).

In light of Appellants' disclosure, the Examiner's interpretation of claim 1 is not reasonable and consistent with the subject Specification and would not be the interpretation given by an artisan in light of the Specification. *See In re Amer. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (claims construed during examination should be given their broadest reasonable interpretation consistent with the specification and should be read in light of the specification as they would be interpreted by a person of ordinary skill in the art).

For the above stated reasons, we reverse the Examiner's § 102 rejection based on Tomoyasu of claim 1 and of claims 6-8, 14, and 15 which depend therefrom.

We also reverse the corresponding rejection of claim 16. This is because the Examiner has failed to explain why Tomoyasu's baffle plate 326 is considered to possess the centering capability required by the claim 16 baffle plate. As indicated above, it is unclear how baffle plate 326 would be capable of being centered by coupling to ring 325, 327 since the plate and ring constitute an integral structure.

The § 102 rejection based on Li

Li discloses a plasma confinement ring 222 which abuts focus ring 216 (Fig. 3; col. 5, ll. 23-28; sentence bridging cols. 5-6). The Examiner regards Li's plasma confinement ring 222 as readable on Appellants' claimed baffle plate and patentee's focus ring 216 as readable on the here-claimed centering ring (Ans. 5, 7-8). We agree.

In support of their contrary view, Appellants point out that Figure 3 of Li shows a gap between the plasma confinement ring and the focus ring such that the former would not be centered by coupling to the latter as required by claim 1 (App. Br. 6; Reply Br. 4-5). Notwithstanding this depiction of a gap, the incontrovertible fact remains that plasma confinement ring 222 and focus ring 216 are expressly disclosed as abutting one another (col. 5, ll. 23-28; sentence bridging cols. 5-6). Such abutment satisfies the coupling requirement of claim 1. This is because Appellants' coupling feature is disclosed as comprising, for example, surface 87 on baffle plate 64 which mates with (i.e., abuts) surface 120 on centering ring 100 (Figs. 5-7; Specification ¶¶ 0040-0041). We do not perceive and Appellants do not

assert that the coupling achieved by mating surfaces on the baffle plate and centering ring of claim 1 is different from the coupling achieved by abutting surfaces on the plasma confinement ring 222 and focus ring 216 of Li.

In light of the foregoing, we find that Li inherently possesses the coupling and concomitant centering capabilities required by independent claims 1 and 16. Accordingly, we affirm the Examiner's § 102 rejection based on Li of claims 1, 8, and 14-16.

The § 102 rejection based on Ludviksson

The Examiner considers Ludviksson's shield ring 62 and baffle plate 64 as readable on Appellants' claimed centering ring and baffle plate respectively (Ans. 6). However, as correctly pointed out by Appellants (Reply Br. 5), Ludviksson's baffle plate is unambiguously shown in Figure 1 as coupled to the wall of chamber 10 rather than to shield ring (i.e., centering ring according to the Examiner) 62 as required by claim 1. Indeed, as clearly displayed in Figure 1, baffle plate 64 is significantly disposed below and away from shield ring 62.

Under these circumstances, we do not understand (and the Examiner does not explain) how Ludviksson's baffle plate 64 and shield ring 62 could possess the coupling and centering capabilities required by independent structure claims 1 and 16 or the coupling and centering steps required by independent method claim 17. Therefore, we reverse the Examiner's §102 rejection based on Ludviksson of claims 1, 7-13, 16, and 17.

The § 103 rejection based on Nakayama, Tomoyasu, Li or Ludviksson in view of Kanno

The Examiner concludes that "[i]t would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the bolts of Kanno in the primary prior art to fix the rings of the substrate holders in the plasma apparatus [as required by claim 2]" (Ans. 7).

Claim 2 depends from claim 1, and we have reversed the Examiner's rejections of claim 1 based on Nakayama, Tomoyasu, and Ludviksson. Since the above discussed deficiencies of these references are not corrected in the Examiner's obviousness positions, we also cannot sustain the § 103 rejections of claim 2 based on Nakayama, Tomoyasu or Ludviksson in view of Kanno.

As for the § 103 rejection of claim 2 based on Li in view of Kanno, this rejection has not be contested by Appellants in either the Appeal Brief or the Reply Brief as noted in footnote 3, *supra*. Therefore, we summarily affirm the uncontested rejection of claim 2 based on Li in view of Kanno.

CONCLUSION

We have affirmed the § 102 rejections of claim 16 based on Nakayama and of claims 1, 8, and 14-16 based on Li, but have reversed all other § 102 rejections advanced on this appeal.

We also have affirmed the § 103 rejection of claim 2 based on Li in view of Kanno but have reversed the § 103 rejections of this claim based on Nakayama, Tomoyasu or Ludviksson in view of Kanno.

The decision of the Examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED-IN-PART

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